BEFORE THE

Federal Communications Commission

WASHINGTON, D. C.

In the Matter of	)	
	)	
Implementation of Section 17	)	
of the Cable Television	)	ET Docket No. 93-7
Consumer Protection and	)	
Competition Act of 1992	)	
	)	
Compatibility Between	)	
Cable Systems and Consumer	)	
Electronics Equipment	)	

REPLY COMMENTS OF TELE-COMMUNICATIONS, INC.

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TABLE OF CONTENTS

SUMMARY

TCI reiterates its support for alleviating the equipment compatibility problem through: 1) inter-industry cooperation and information sharing; 2) increased consumer education and notification; 3) use of supplemental equipment and enhanced set-top descramblers; and 4) incorporation of modular designs in TVs/VCRs. In addition, TCI:

- urges the Commission to reject the Electronics Industry Association's ("EIA") self-serving and inaccurate effort to attribute the entire blame for the compatibility problem to the cable industry.
- points out that "in the clear" security techniques not only will not eliminate the compatibility problem, but they will create serious program security problems and introduce substantial costs for the cable industry and cable subscribers.
- urges the Commission to reject proposals advocating the imposition of more stringent standards or technological moratoria on cable systems. Implementation of such proposals would stifle (and, in the case of a moratorium, completely eliminate) technological progress, reduce program diversity, and diminish consumer choice in direct contravention of the overriding policies of the 1992 Cable Act.

This proceeding is not about favoring one industry's technologies or products over the other's. Rather, it is about making the two industries' equipment work together to protect consumer investment without confining technological development or consumer choice. TCI's proposed approach achieves these goals in the most cost effective manner possible.

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REPLY COMMENTS OF TELE-COMMUNICATIONS, INC.

Tele-Communications, Inc. ("TCI") hereby files its reply comments in the above-captioned proceeding.[1] TCI reiterates its support for an approach to the compatibility problem that promotes inter-industry cooperation, consumer education, the use of supplemental equipment and enhanced set-top descramblers, and the implementation of modular equipment designs (for example, the integration of EIA/ANSI 563 and modular tuning in TVs and VCRs). TCI also responds to specific arguments advanced by members of the consumer electronics industry.

I. INTRODUCTION

There will be no end to the compatibility problem currently facing the cable and consumer electronics industries unless both industries are willing to compromise and cooperate in educating

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[1] Notice of Inquiry in ET Docket No. 93-7, FCC 93-30 (released January 29, 1993) ("Notice").

consumers and forging new solutions. In its initial comments, TCI explained that the compatibility problem is a result of the fundamentally unsynchronized technology cycles inherent in the cable and consumer electronics industries. In order to ameliorate the problem caused by this technological disjunction, TCI recommended a compromise approach, including: 1) cooperation and information sharing between the industries; 2) increased consumer education and notification of the problems and the numerous existing solutions available to them; and 3) the incorporation of modular designs in TVs/VCRs to prevent premature obsolescence of consumer electronics products/features and to avoid the senseless duplication of efforts and functionality that in the past has exacerbated the compatibility problem.

Unfortunately, the Electronics Industry Association ("EIA") submitted comments which offer a simplistic approach that encourages the Commission to blame the cable industry for the entire compatibility problem and to force cable operators to shoulder all the costs of solving this problem. EIA would have the Commission force cable operators to discontinue scrambling entirely and deliver all signals in the clear, standardize all cable equipment, and curb the industry's rapid technological development. As TCI demonstrates below, implementation of these proposals would <u>not</u> eliminate the compatibility problem. Moreover, the EIA approach would impose significant and unnecessary costs at a time when the Commission is attempting to hold down consumer rates. It would also seriously undermine the ability of cable operators to protect their programming from theft and deny consumers the benefits of technological

advancements, including greater quality signals, interactive services, and expanded channel capacity.

II. THE COMMISSION SHOULD REJECT EIA'S ATTEMPT TO ATTRIBUTE THE ENTIRE BLAME FOR THE COMPATIBILITY PROBLEM TO THE CABLE INDUSTRY

While TCI and other commenters made genuine attempts to explain the causes of the compatibility problem and emphasized compromise, cooperation, and increased consumer education as crucial to solving this problem over the short and long term,[2] EIA opted instead to focus on blame shifting in its comments. As such, EIA made clear that it is not interested in contributing to any solutions to the compatibility problem. Rather, its entire approach rests on the self-serving premise that cable operators should bear all the costs of compatibility solutions.

Whereas cable operators and others recommended inter-industry information sharing,[3] EIA admonished the Commission not to "forget which industry's conduct made this legislation necessary;"[4] while cable operators described the compatibility problem as a complex one whose genesis stems from the technological disjunction of the two industries,[5] EIA

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[2] See, e.g., TCI at iii ("[A] more appropriate solution

simplistically blamed the entire problem on cable's purported "lack of standards;"[6] while cable operators proposed a compromise approach under which the responsibilities and costs for compatibility solutions are shared by both industries,[7] EIA insisted the Commission "should be much quicker to prescribe rules of conduct for" cable operators and "much more reluctant to restrict the performance" of electronics industry companies;[8] where cable commenters recommended a modification of each industry's functional responsibilities,[9] EIA maintained the only real solution lies in severely regulating cable's behavior.[10]

Ironically, the extreme positions taken by EIA contradict the more reasonable approaches advanced by several of EIA's members. For example, Zenith proposes a compromise approach that closely parallels TCI's model. Zenith recognizes that "in the clear" signal access control technologies will not adequately relieve the compatibility problem.[11] In the short term, Zenith recommends focusing on the use of existing supplemental hardware and enhancements to set-top descramblers to alleviate many of the

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[6] EIA at 6.

[7] See, e.g., Discovery Communications at 4; TCI at 16-17.

[8] EIA at 8-9. See also id. at 31.

[9] See, e.g., CATA at 13; TCI at 16.

[10] EIA at 35. Two examples of the draconian restraints EIA would have the Commission impose on cable operators are the prohibition of all scrambling, id. at 42, and the imposition of a moratorium on the use of digital compression in all cable systems. Id. at 43.

[11] Zenith at 4.

compatibility problems.[12] In the long term, Zenith suggests an approach which would, among other things: 1) establish new "Cable Ready" specifications for consumer electronics equipment including reduced DPU interference, improved tuner technology, and the incorporation of an interface port in TVs/VCRs; and 2) require cable operators to make set-back descramblers available to its subscribers.[13]

TCI's review of the record reinforces its belief that the most efficacious approach toward achieving compatibility lies in compromise and cooperation between the two industries and expanded consumer education and notification policies. TCI readily accepts its obligation to help establish and promote workable solutions to the compatibility problem. It urges the Commission to reject EIA's one-sided attempt to shift all the blame and costs of this problem onto cable operators.

III. CABLE OPERATORS' RIGHT TO SCRAMBLE MUST BE PROTECTED

A few commenters urge the Commission to order cable operators to replace addressable scrambling with "in the clear" signal access control technologies -- such as interdiction, traps, and broadband descrambling -- as a means of solving the compatibility problem.[14] The disadvantages and shortcomings of each of these alternative security techniques are amply

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[12] Id. at 8.

[13] Id. at 6-9.

[14] See, e.g., Anthony P. Cerrone at 1; EIA at n. 27, 28; Matsushita at 12-14; Mitsubishi at 7-8; Multichannel Communications Services, Inc. at 6; National Electronics Service Dealers Association at 4; Natural Resources Defense Council at 2; William Ortner at 1; Thompson Consumer Electronics at 3.

delineated in the record.[15] While TCI will not repeat these problems here, we emphasize that to mandate the use of one or more of these techniques in lieu of scrambling would force cable operators to devote substantial sums of money to install inferior security technologies that will be incompatible with digital video compression. While these alternative technologies may serve as attractive complements to addressable scrambling in certain situations, they are in no way adequate substitutes for it. This will be especially true in the emerging, interactive video realm in which customized packaging of programming will require a signal access control method that can secure and distribute many more levels of service and with much greater automation and efficiency than previous systems.[16]

More importantly, these "in the clear" technologies will not eliminate, or even substantially alleviate, the compatibility problem. As TCI and a number of commenters stressed, emphasizing

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[15] See, e.g., Cablevision at 6-7; CATA at 7, 12; Continental Cablevision at 20; Greater Media, Inc, et al. at 4-6; [redacted]

scrambling or encryption as the cause of the compatibility problem is fundamentally incorrect. It is the presence of a set-top converter box with a single channel output (generally channel 3 or 4), not the use of scrambling, that interferes with functions requiring simultaneous access to two channels. Further, set-top boxes are needed for a variety of reasons and, given the unsynchronized technology cycles of the cable and consumer electronics industries, will never entirely disappear. Digital video decompression, advanced program guides, on-screen displays, etc. represent new technologies and new services that subscribers will desire, yet which will entail the use of a set-top box.[17] As Continental Cablevision described it, "As long as there is technological progress, some type of converter will be required to interface today's distribution systems with an aging population of TV receivers and VCRs."[18]

Thus, prohibiting the use of scrambling will not eliminate the compatibility problem. In fact, such a prohibition would simply create significant new problems and security concerns and introduce substantial costs for the cable industry and cable subscribers.

For these reasons, the Commission's report to Congress should echo the findings of the New York City Department of

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[17] See, e.g., Cablevision at 22-23, 28; CATA at 15; Discovery Communications at 2; Greater Media at 9; Scientific Atlanta at 5.

[18] Continental Cablevision at 28. See also Time Warner at 56-57. In addition, as TCI stressed in its initial comments, set-top converters are often deployed by cable operators to overcome technical deficiencies of TVs or VCRs. TCI at 2-3.

Telecommunications and Energy which, after conducting an extensive hearing on the compatibility question, concluded that:

> the use of converter boxes to descramble signals represents state-of-the-art technology in the cable industry. It also represents an important and necessary measure to combat extensive theft of cable service in Manhattan. Other means of fighting theft, including the interdiction technology being tested in several locations around the country, do not yet compare with signal encoding and converter boxes.[19]

Further, the Commission should follow its own prior decision to accord maximum flexibility to cable operators in their selection of signal access control technologies:

> The need to comply with the regulatory policies incorporated in the 1992 Cable Act, including the mandatory signal carriage rules, the rate regulation provisions, and the equipment compatibility requirements, along with the benefits associated with the development of new programming services and potential technological developments, make it highly desirable that systems retain the flexibility to alter their channel configurations and signal access control mechanisms. Thus, we do not intend to mandate the continued use of any particular mode of operation.[20]

This flexible policy is wholly consistent with the balancing approach toward assuring compatibility envisioned by Section 17

time and the flexibility to accomplish its task sensibly and fairly.[21]

In short, the most constructive and efficacious approach the Commission can undertake is one which protects the right to scramble and focuses on the use of supplemental hardware, consumer education, and modular equipment designs as the linchpins toward alleviating the compatibility problem.

IV. THE COMMISSION SHOULD PROMOTE THE USE OF SUPPLEMENTAL HARDWARE, CONSUMER EDUCATION, AND MODULAR EQUIPMENT DESIGNS TO SOLVE THE COMPATIBILITY PROBLEM

A. Supplemental Hardware and Consumer Education

In its initial comments, TCI proposed that compatibility between cable systems and the embedded base of TVs and VCRs could be achieved to a large degree through greater consumer notification and education and the use by consumers of supplemental devices and enhanced descramblers.[22] Most commenters recognize the viability of such a short-term approach.[23] Indeed, given the ongoing need for set-top boxes to accommodate technological advances in video distribution systems

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[21] CATA at 4-5.

[22] TCI at 6-15. These devices include bypass switches that route non-scrambled signals around the descrambler to the television; universal remotes that control TVs, VCRs, and cable descramblers; dual-tuner descramblers that pass two video channels instead of just one; and devices like VCR-Plus, which viewers can program to record programming delivered through a descrambler.

[23] See Cable-Consumer Electronics Compatibility Advisory Group at 11-12; Cablevision at 4, 13; CATA at 10-11; Continental Cablevision at ii, 9, 29, Appendix A; General Instrument Corp. at 3-4; Greater Media at 6; Intermedia at 9-10; National Association of Telecommunications Officers and Advisors at 7 ("NATOA"); NCTA at 28-31; Sony Corp. at 6, 10; Telecable Corporation at 12; Time Warner at 49-55; Zenith at 8.

and to overcome technical deficiencies in TVs/VCRs, this "short-term" approach has perennial applicability regardless of which signal access control method predominates.

Further, as TCI previously noted, this "short-term" approach for achieving compatibility is consistent with the experience in the computer and telecommunications industries where supplemental devices called "translators" and "gateways" permit communications between otherwise incompatible components as a substitute for interface standards.[24] Moreover, a computer user who purchases new software is often required to make further expenditures to upgrade his/her existing computer system to accommodate the new software. For example, it is not uncommon for a user who installs Microsoft Windows on an older PC to have to purchase additional memory, more disk space, perhaps a higher quality monitor, etc. to avert incompatibilities and accrue the full benefits Windows provides. At some point, of course, it may become more economical to purchase a new PC with Windows already installed than to use supplemental hardware. Either way, the user chooses to make additional investments to benefit from the increased functionality of the advanced technology.

Likewise, the television viewer should be able to choose whether the additional entertainment value accrued via a subscription to cable justifies the purchase or rental of new or supplemental equipment to achieve the desired compatibility.[25]

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[24] See TCI at 14 (footnote omitted).

[25] Notwithstanding the views of certain commenters, see William Ortner at 1; Oregon Consumer League at 1, as the Commission has explicitly authorized in a related proceeding, (continued...)

The only difference in the video realm which makes the

support this approach.[26] TCI concurs with the recommendations of New York City and others to commission the joint NCTA/EIA committee, or some other inter-industry body that includes FCC and local governmental membership, to: 1) promote inter-industry information exchange; 2) investigate and develop new compatibility solutions; and 3) design and publish user guides on how to solve the various compatibility problems.[27] For example, this committee could design standardized supplemental devices[28] and upgraded versions of EIA/ANSI 563 which could facilitate compatibility while accommodating technological developments. TCI will be glad to participate in such a cooperative, educational venture.[29]

Further, TCI urges the Commission to recognize that such stepped-up notification and educational efforts will succeed only

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[26] See, e.g., CATA at 9; Continental Cablevision at iv, 9, 28-29, Appendix A; Mesa, Arizona at 3; NYC at 5-6, Appendix A at 22-24; Telecable Appendix A at 40; TCI at 11-15; Time Warner at 75-77.

[27] See, e.g., NYC at 6, Appendix A at 22-25; Discovery Communications at 5; Media General at 6; NATOA at 4.

[28] One such supplemental device could be the specially designed set-top interface box described in TCI's initial comments at 8-9 and Attachment A.

[29] Commissioner Duggan has recently advocated a greater reliance on such industry advisory committees in these contexts:

> To fit changes in technology, I'm convinced that we should rely more heavily on the advisory committee process.... As the technologies we regulate become more complex, I believe the FCC should continue to organize and rely on expert panels ... to gather information and recommend the right choices.

"The Consumer Electronics Revolution and the FCC," Remarks of Commissioner Ervin S. Duggan Before the Government Affairs Council of the Electronics Industry Association Consumer Electronics Group, January 9, 1993, at 14.

if they are undertaken by both the cable and consumer electronics industries. Toward this end, TCI reiterates its call for notification and labelling requirements at the point of sale to increase consumer awareness of the potential limitations of a TV/VCR when used with some of the services the subscriber may choose to purchase from cable operators.[30]

B. Modular Equipment Designs

While much of the compatibility problem can be alleviated through greater consumer education and the use of supplemental

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To make this compromise work, TCI recommended that manufacturers incorporate a standard interface port (called "EIA/ANSI 563") and a modular tuner into TVs and VCRs.[33] The record reveals widespread support for EIA/ANSI 563[34] and modular tuning,[35] and TCI reiterates its support for them here.

The EIA/ANSI 563 standard interface along with a set-back descrambler is a modular approach toward scrambling that would avoid the impairment or disabling of TV/VCR features. Similarly, modular tuning would ensure that cable operators are not later forced to install a set-top converter to extend the tuning capacity of TVs and VCRs or to accommodate other technological developments which could reintroduce the very same frustration of TV/VCR features that EIA/ANSI 563 would avert. Rather, with modular tuning, when a cable system expands channel capacity beyond the capacity of a TV/VCR or upgrades its signal transmission technology (for example, from analog to digital) the consumer would have the option of merely replacing the modular tuner rather than purchasing a new set or installing a set-top converter to receive the benefits of the upgraded cable system. As the National Association of Telecommunications Officers and

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[33] See id.

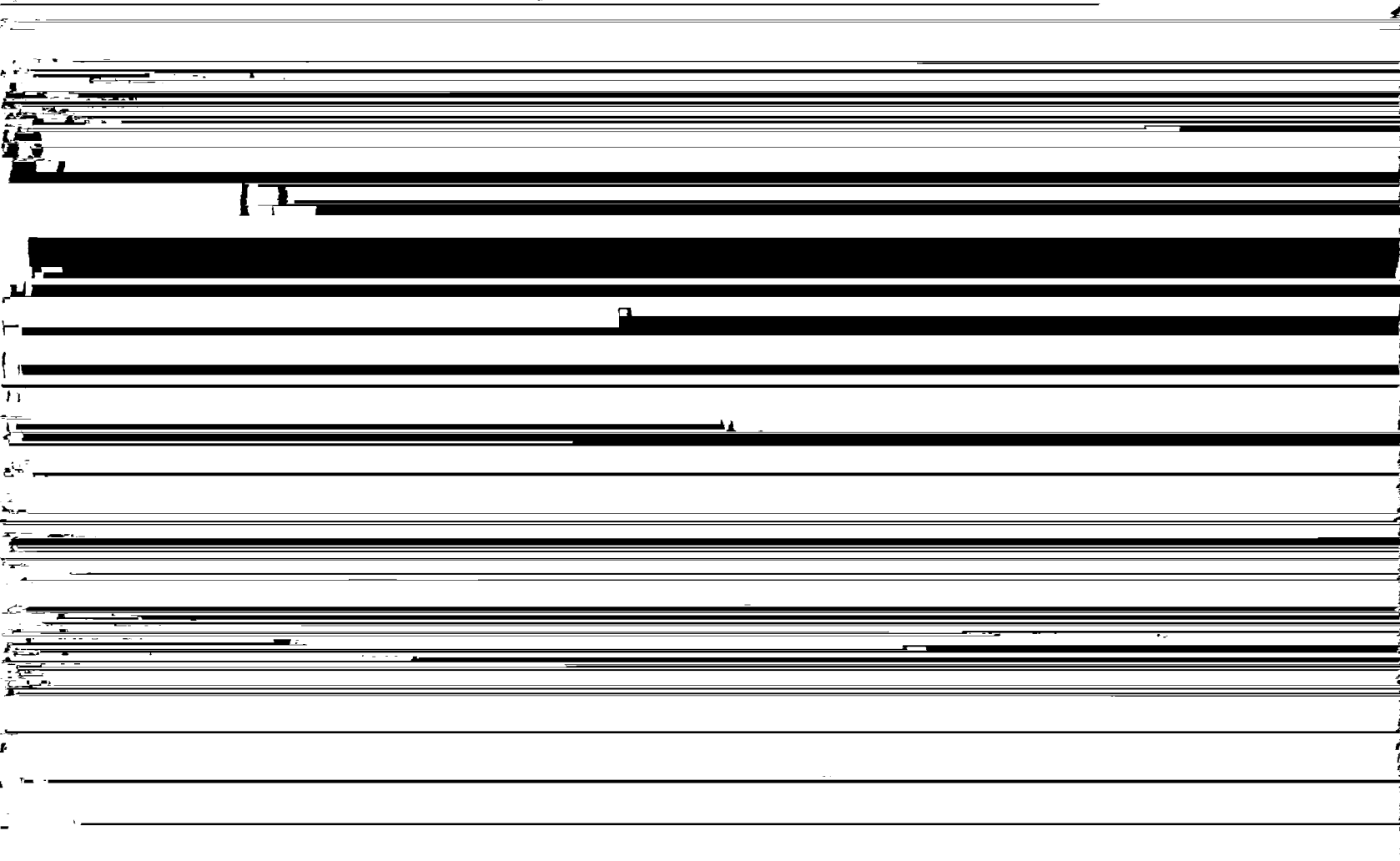
[34] See, e.g., Booth American Company at 1; Cablevision at 9, 13; CATA at 13; Intermedia at 14-15; NCTA at 23-24, 38, n. 43; Scientific Atlanta at 3; Sony Corp. at 18 (decoder interface bears investigation); Telecable at 3-4; Time Warner at 56-61; Zenith at 6-8.

[35] See, e.g., CATA at 14; Greater Media at 8; Intermedia at 19-20; Matsushita at 11 ("Television and VCR manufacturers are obliged to make tuners robust enough to handle cable signals, yet still sensitive enough to tune broadcast signals."); NATOA at 8-9; NCTA at 26-27; Time Warner at 71; Zenith at 9-10.

Advisors, et al. ("NATOA") described the benefits of adding modularity to consumer electronics products:

> [T]he committee should consider standards or incentives to change the manner in which "cable ready" television receivers are manufactured in order to ... enable consumers to modify their televisions, rather than purchase more advanced ones, as cable and consumer electronics technology advances. A television should become more like a personal computer, which consumers may modify to meet their changing needs....[36]

Consumer electronics representatives criticize EIA/ANSI 563 arguing that it will: 1) increase the costs of TVs/VCRs which consumer electronics manufacturers could not recover due to the thin margins in their industry;[37] 2) not address the compatibility problems of the embedded base of TVs and VCRs;[38] and 3) be rendered obsolete by digital video compression.[39] Each of these criticisms of EIA/ANSI 563 is rooted in the consumer electronics industry's desire to force cable operators to



descrambling[41] which, by definition, will be antiquated by digital video compression/transmission.

More importantly, each of these criticisms of EIA/ANSI 563 is fundamentally misguided. First, since the cost of a TV is predominantly in the display tube, the addition of modular components, such as EIA/ANSI 563 or modular tuners, to TVs would constitute a minor per unit cost. Further, the relative cost per household of adding such modularity to consumer electronics products would be far less than overhauling cable systems' conditional access technologies.[42]

Second, although EIA/ANSI 563 will not solve the compatibility problem for the embedded base of TVs/VCRs, TCI's proposed short-term approach based on increased consumer education, use of supplemental equipment, and enhancements to set-top descramblers is the most cost effective way of addressing the compatibility problem for this embedded base, since costs are incurred only by those subscribers who desire and are willing to pay for achieving compatibility.

EIA ignores this approach, however, opting instead to have the Commission force cable operators to incur significant costs to implement inferior conditional access control technologies which will do little more than reduce security and increase costs to all cable subscribers, regardless of whether they desire such

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[41] See EIA at 28.

[42] Also, as TCI pointed out in its initial comments, EIA's concern about increased costs would be eliminated if the Commission requires all manufacturers to implement EIA/ANSI 563 as it did with built-in decoder circuitry in the closed captioning area. See TCI at 21 and n. 15.

compatibility for their existing TVs/VCRs. Implementation of EIA's approach would be particularly bad public policy, given the fact that even the Electronics Technicians Association (whose principal members are involved in TV, radio, and VCR sales and service) estimates "that no more than 5% of today's subscribers experience the [compatibility] problem."[43]

Third, EIA's claim that the EIA/ANSI 563 concept will not work in a digital environment is simply wrong. As TCI explained in its initial comments, since the EIA/ANSI 563 interface represents a modular approach towards signal security, this same concept could be applied in a digital world when digital TVs and VCRs are introduced.[44]

Finally, adding modularity to TVs/VCRs represents the best way to protect consumers from the premature obsolescence of their products caused by the unsynchronized technology cycles of the cable and consumer electronics industries. Indeed, the EIA/ANSI 563 concept -- when coupled with modular tuners that could be upgraded to accommodate increased cable channel capacity, digital signal transmission, and other technological upgrades -- will be the best method of protecting the consumer's primary investment in the TV's display tube. EIA and others suggest that the very same benefits realized by modular equipment designs can be achieved by imposing national standards and/or a moratorium on the development of cable technologies. As TCI discusses in the next section, such approaches are astonishingly

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[43] Electronics Technicians Association at 6.

[44] TCI at 24.

inconsistent with the public interest and would benefit no one except the consumer electronics industry.

V. NATIONAL CABLE STANDARDS SERVE NO ONE BUT EIA

Some commenters argue that the key to solving the compatibility problem lies in mandating national standards for cable operators.[45] These commenters point to the standards established in fields such as electricity, telephony, and AM/FM radio as support for similar standard setting in the cable arena.[46] These analogies are decidedly inapt in that they ignore two unique dimensions of cable TV, namely conditional access requirements and rapid technological progress.

Unlike businesses operating in the fields of telephony, electricity, or even AM/FM radio, cable systems rely on conditional access methods to provide the appropriate level of service to their customers. A national scrambling/encryption standard would provide signal pirates with increased incentives to defeat the standard, since compromise of a national scrambling standard would provide access to all cable programming nationally. Thus, national standards in the cable industry could seriously undermine the ability of cable operators to protect their signals. On the other hand, in a world of multiple scrambling techniques, if a signal pirate's efforts are "rewarded" by access to limited amounts of programming,

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[45] See, e.g., EIA at 10, 25, 30, 43; Electronics Technicians Association at 4; Matsushita at 3, 5, 10, 15-18; Mitsubishi at 3, 9; NATOA at 10; Thompson Consumer Electronics at 5.

[46] See, e.g., EIA at 7-8.

incentives are significantly reduced to engage in the endeavor in the first place. Diversity in scrambling methods is itself a powerful security technique.

Recognizing these security concerns, some commenters focused their calls for cable standards on non-security related areas such as cable channelization, frequency coding, modulation, and multiplexing.[47] However, these commenters fail to account for the other critical dimension of the cable TV industry, namely its rapid technological development.[48] As one commenter has described it:

> One of the solutions would therefore suggest that a set of standardizations be developed. After all we have 35 MM film for still cameras, standard telephone jacks and other such conveniences that have not thwarted creativity or restrained trade. Yet in the cable world you have to worry about the fourth dimension: time. When do you seek compatibility? If compatibility is sought today (meaning 1993) will it include or exclude compression technology, other forms of digital technology, or HDTV? Will inclusion of one or more of these yet-to-be implemented technologies exclude those that don't employ that technology? When will we know that technology has advanced as far as it can?[49]

Proponents of cable standards are undisturbed by the prospect of stifling technological progress in the cable industry. In fact, several EIA members actually called for a

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[47] See, e.g., Matsushita at 15-18; Mitsubishi at 9.

[48] TCI also notes that by previous order the Commission has already settled the question of the appropriate level of cable standards. See Review of the Technical and Operational

moratorium on cable technologies, such as digital compression,[50] or a limit on cable channel capacity.[51] In effect, these commenters would have the Commission achieve compatibility at the expense of reducing program diversity and diminishing consumer choice in direct contravention of the overriding policies of the 1992 Cable Act.[52] As Commissioner Duggan has aptly commented on this point:

> We are aware, however, that the Act expresses a clear preference for competition, for growth and diversity in programming, and for expanding consumer choice. Those principles are central to the Act, and I am seeking to be faithful to them as we shape our rules.[53]

In addition, circumscription of cable technologies would discourage continued cable operator investment in telecommunications infrastructure development which, to date, has been responsible for stimulating a great deal of economic growth. TCI, for example, recently announced that it would spend $1.9 billion on local fiber installations.[54] It also would put cable

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[50] See EIA at 43-44; Mitsubishi at 9.

[51] See, e.g., EIA at 25, n. 35.

[52] See 1992 Cable Act §§ 2(b)(1)-(3) ("It is the policy of Congress in this Act to promote the availability to the public of a diversity of views and information through cable television and other video distribution media; rely on the marketplace, to the maximum extent feasible, to achieve that availability; ensure that cable operators continue to expand, where economically justified, their capacity and the programs offered over their cable systems.") (emphasis added).

[53] "Cable, Localism and the Third Stage," Remarks of Commissioner Ervin S. Duggan Before the Sixth Annual Local Programming Seminar National Academy of Cable Programming, March 22, 1993 at 2.

[54] See, e.g., "TCI to Spend $1.9 Billion on Local Fiber Installations," Communications Daily, April 13, 1993, at 1-3 (TCI's plan to install 7000 miles of fiber to build the "local

(continued...)

operators at a significant disadvantage with respect to traditional cable competitors, such as SMATV and MMDS providers, as well as emerging video dial tone and DBS systems.

The Commission should reject the imposition of moratoria on cable technologies as plainly inconsistent with the public interest. A recent article described the ultimate goal of cable's progress towards 500 channels and interactivity as follows:

> The final destination is a post-channel universe of essentially unlimited choice: virtually everything produced for the medium, past or present, plus a wealth of other information and entertainment options, stored in computer banks and available instantly at the touch of a button.[55]

In such an interactive video realm, the consumer rather than the network takes control of the schedule of programming and TV viewing becomes akin to browsing through a huge library and making an instant selection. It would be nonsense to place a moratorium on such pro-consumer developments.

This proceeding is <u>not</u> about favoring one industry's technologies or products over the other's; rather, it is about making the two industries' equipment work together to protect consumer investment yet without confining technological development or consumer choice. Accordingly, the Commission should reject all proposals that would hamstring cable

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[54](...continued)
streets and boulevards" for national broadband telecommunications infrastructure will affect more than 250 cities and involve more than 1,000 contractors by 1996, <u>one of the largest private sector telecommunications undertakings in our nations history</u>).

[55] Zoglin, "When the Revolution Comes What Will Happen to ... Channels, Networks, Commercials, Video Stores, Your Bill?" Time, April 12, 1993 at 56.

development through the imposition of national standards or technological moratoria and focus instead on achieving compatibility through consumer education, supplemental equipment, and the incorporation of modular designs in TVs/VCRs.

CONCLUSION

For the foregoing reasons, TCI respectfully recommends that the Commission adopt a compromise approach predicated on inter-industry cooperation, increased consumer education, the use of supplemental equipment and enhanced set-top descramblers, and the promotion of modular equipment designs as the best method of alleviating compatibility problems without stifling technological progress.

Respectfully submitted,

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